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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE
**WATER SUPPLY OUTLOOK
FOR
MONTANA**

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P.O. Box 98
BOZEMAN, MONTANA 59715
OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

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and
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS
Collaborating with
MONTANA AGRICULTURAL EXPERIMENT STATION

AS OF
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STATEWIDE SNOWPACK

Most areas have between 40 and 65 percent of average snow water content. Due to the prolonged above normal temperatures, the high elevation snowpack is melting earlier than normal this year.

Snowfall during April was below average in most areas. Usually about 93 of the 210 snow courses measured on May 1 show an increase in water content during April. This year only 8 snow courses increased. Snow in lower elevations is generally gone with many low elevation snow course notes reporting, "NO SNOW".

A few snow courses will be measured on May 15 and June 1, with most of the information on mountain conditions and status of snowmelt being obtained from SNOTEL reports. Currently, there are 45 operational SNOTEL sites in Montana reporting snow water content, precipitation and temperature twice daily.

STATEWIDE STREAMFLOW

Streamflow in April was generally near or above average due to the early snowmelt. Streamflow for the spring and summer months is forecast to be well below average in most areas, generally in the range of 45 to 65 percent of average. Runoff is about two to three weeks early this season.

The Kootenai River, with headwaters in British Columbia where snowpack is a little better than in Montana drainages, is expected to have runoff about 80 to 85 percent of average. The Milk, St. Mary's, and portions of the Ruby, Madison, Gallatin and Yellowstone River drainages should have 70 to 75 percent of average runoff.

Issued by
NORMAN A. BERG
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Reviewed by
VAN K. HADERLIE
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
Bozeman, Montana

In Cooperation with
J. A. ASLESON
DIRECTOR
Montana Agricultural Experiment Station

Report prepared by
PHILLIP E. FARNES, SNOW SURVEY SUPERVISOR
DONALD J. HUFFMAN, HYDROLOGIST
CINDY L. ONDRAK, STATISTICAL ASSISTANT
GLENN J. HERDINA, HYDROLOGIC TECHNICIAN

SOIL CONSERVATION SERVICE
P.O. Box 98
Bozeman, Montana 59715



WATER SUPPLY SHORTAGE

The water supply outlook has deteriorated because of earlier than normal melt and lack of high elevation snowfall in April. The streamflow is expected to be quite low on streams and rivers not having stored water and low water is expected to come earlier this season. Good conservation practices will be required to stretch this short supply:

- Keep ditches clean and in good repair.
- Repair leaks in sprinkler equipment.
- Don't over irrigate. Apply the proper amount of water at the proper time.
- Adjust fertilizer rates to crop needs and available moisture supplies.
- Arrange for supplemental feed or pasture early.
- Contact the local Soil Conservation District for additional assistance.

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PUBLIC MEETINGS

We have received no additional information relative to the Secretary of Agriculture's decision on how the Snow Survey and Water Supply Forecast Program will be managed. We will pass this decision on as soon as it becomes available.



SNOW SURVEY DATA

SNOW	THIS YEAR				PAST RECORD			
	DATE	SNOW DEPTH (INCHES)	WATER CONTENT (PERCENT)	WATER CONTENT (PERCENT)	DATE	SNOW DEPTH (INCHES)	WATER CONTENT (PERCENT)	WATER CONTENT (PERCENT)
NAME	ELEVATION	DATE	SNOW DEPTH (INCHES)	WATER CONTENT (PERCENT)	NAME	ELEVATION	DATE	SNOW DEPTH (INCHES)
ABUNDANCE LAKE	8800	4/28	45	18.2	25.2	25.0		
ARCH FALLS	7350	4/29	26	9.8	14.2	16.7		
BAUGER PASS	6900	5/01	70	33.8	38.9	45.9		
BALO EAGLE PEAK	5700	4/27	94	48.4	55.7	65.4		
BALO MOUNTAIN (WY)	9600	5/02	42	15.5	22.3	31.1		
BALO RIDGE	7500	4/29	17	6.7	17.5	14.7		
BANFIELD MOUNTAIN	5600	4/27	32	14.4	20.0	24.4		
BANFIELD MOUNTAIN PILLW	5600	4/27	32	13.0	18.1	20.5		
BAFEE CREEK	5500	5/01	54	27.3	42.0	49.5		
BAFEE MOUNT	4600	5/01	43	18.7	32.0	35.1		
BAFEE TRAIL	3800	5/01	0	0.0	0.0	1.8		
BASIN CREEK	7100	4/29	16	4.3	12.2	10.6		
BASSOON PEAK	5150	5/01	0	0.0	4.5	7.7		
BEAGLE SPRINGS	8850	4/25	23	8.3	10.3	-		
BEAGLE SPRINGS PILLW	8850	4/25	38	6.9	10.2	-		
BEAR BASIN	8150	4/30	38	15.4	22.0	25.6		
BEAR MOUNTAIN (ID)	5400	4/27	90	46.8	45.9	67.7		
BEAR PAW SKI AREA	5200	4/28	0	0.0	15.0	4.9		
BEAVER LAKE	5900	5/01	41	17.2	25.4	25.9		
BIG CREEK	6750	5/01	85	43.4	51.2	52.2		
BIG SKY	7700	4/30	27	11.0	15.7	19.4		
BIG SKY MEADOW	6350	4/30	0	0.0	6.3	3.9		
BIG SNOWY	7150	4/25	42	16.3	29.4	28.0		
BIG SPRINGS (ID)	6500	4/28	12	4.4	12.6	17.7		
BLACK BEAR	7950	4/29	76	35.6	42.6	45.4		
BLACK BEAR PILLW	7500	4/29	SP	32.8	38.7	40.9		
BLACK MOUNTAIN	7750	5/02	30	10.8	21.4	-		
BLACK PINE	7100	4/28	14	5.4	14.6	16.2		
BLACK PINE PILLW	7100	4/28	SP	8.4	16.1	16.7		
BLOODY DICK	7600	4/29	18	6.8	17.0	15.7		
BLOODY DICK PILLW	7600	4/29	SP	5.1	15.8	-		
BLUE LAKE	5900	5/01	39	16.4	27.6	26.1		
BOIS SOTS	8000	4/30	19	6.8	7.6	12.8		
BOULDER MOUNTAIN	7950	4/28	38	16.0	24.6	23.4		
BOULDER MOUNTAIN PILLW	7950	4/28	SP	16.0	24.4	-		
BOX CANYON	6670	4/28	17	6.3	10.4	8.5		
BOX CANYON PILLW	6670	4/28	SP	4.5	7.2	-		
BOXELDER CREEK	5100	4/28	0	0.0	10.8	6.4		
BRANHAM LAKES	8850	4/30	53	21.8	31.8	36.4		
BRIDGE CREEK	7250	5/01	40	17.6	31.3	34.3		
BRIDGE CREEK PILLW	7250	5/01	SP	14.7	32.2	32.8		
BRISTOW CREEK	3900	4/27	0	0.0	0.0	2.1		
BRUSH CREEK TIMBER	5000	4/28	0	0.0	10.4	8.1		
BULL MOUNTAIN	6600	5/02	3	7.7	10.2	3.3		
BURGESS R.S. #2 (WY)	7900	5/02	12	3.4	7.3	11.2		
CARIN CREEK	5200	4/26	0	0.0	6.2	2.2		
CALL ROAD	8050	4/25	33	11.2	14.2	14.6		
CALVERT CREEK	6450	4/30	10	3.4	11.6	11.3		
CALVERT CREEK PILLW	6450	4/30	SP	0.0	7.0	1.9		
CAMP MISERY	6400	4/26	91	42.0	51.2	55.4		
CAMP SENIA	7890	4/30	26	9.0	8.2	10.6		
CANYON (WY)	7750	5/01	0	0.0	0.0	16.9		
CARROT BASIN	9000	4/28	73	32.8	37.1	44.4		
CARROT BASIN PILLW	9000	4/28	SP	25.4	-	33.5		
CEDAR GROVE	4100	4/27	7	2.1	11.2	7.5		
CHESSMAN RESERVOIR	6200	4/27	1	0.2	7.5	3.5		
CHICKEN CREEK	4060	4/29	0	0.0	6.9	-		
CLOVER MEADOW	8600	4/25	40	16.4	18.7	21.7		
COLE CREEK	7850	4/29	54	22.2	25.2	24.8		
COLE CREEK PILLW	7850	4/29	SP	16.3	22.6	22.5		
COLLEY CREEK	6300	5/02	0	0.0	0.0	6.3		
COMBINATION	5600	4/28	0	0.0	6.0	3.0		
COMBINATION PILLW	5600	4/28	SP	0.0	4.2	2.9		
COOKE STATION	8150	5/01	34	14.4	23.2	22.7		
COPPER BOTTOM	5200	5/01	0	0.0	11.3	6.0		
COPPER BOTTOM PILLW	5200	5/01	SP	0.8	15.8	7.7		
COPPER CAMP	6950	5/01	35	14.9	34.2	34.3		
COPPER CAMP PILLW	6950	5/01	SP	17.8	-	37.9		
COPPER CREEK	3700	5/01	5	2.2	16.8	11.7		
COPPER LAKE CREEK	6100	5/01	29	11.6	29.4	25.2		
COPPER MOUNTAIN	7700	5/01	18	5.1	14.4	11.9		
COTTONWOOD CREEK	6400	5/04	4	1.4	13.4	8.4		
COTOTE HILL	4200	5/01	0	0.0	3.5	3.8		
CRISTAL LAKE	6100	4/25	18	6.2	12.9	15.2		
CRISTAL LAKE PILLW	6100	4/25	SP	5.5	-	-		
DAU CREEK LAKE	4900	4/25	41	15.6	15.6	18.1		
DAISY PEAK	7600	4/28	12	3.3	14.6	11.0		
DALY CREEK	5780	5/01	19	7.5	14.0	13.8		
DARKHORSE LAKE	8600	4/28	48	21.0	28.6	31.8		
DAVIS CREEK	5400	4/27	40	18.9	18.5	24.5		
DEADMAN CREEK	6450	5/01	0	0.0	12.0	10.1		
DEADMAN CREEK PILLW	6450	5/01	SP	0.0	11.4	7.6		
DESERT MOUNTAIN	5600	4/26	25	9.9	16.6	15.1		
DEVILS SLIDE	6100	4/29	47	19.2	24.6	29.3		
DISCOVERY BASIN	7050	4/28	17	6.8	13.4	11.2		
DIVIOE PILLW	7800	4/25	24	8.2	10.9	12.0		
DIX HILL	7800	4/25	SP	10.6	11.7	13.9		
EAST BOULDER S	6400	5/01	0	0.0	9.5	5.1		
EAST FORK R.S.	9250	5/01	51	21.0A	37.5	36.5		
ELK HORN SPRINGS	5400	4/27	0	0.0	0.0	0.8		
ELK PEAK	7800	4/28	6	1.9	13.3	9.7		
EMERT CREEK	4000	4/30	30	12.4	20.8	21.4		
EMERY CREEK PILLW	4350	4/26	17	6.6	4.9	6.7		
FATTY CREEK	5500	5/01	49	6.2	11.4	-		
FISH CREEK	8000	4/29	19	20.9	32.8	25.5		
FISHER CREEK	9100	5/02	73	33.0	40.8	45.1		
FISHER CREEK PILLW	9100	5/02	SP	28.9	37.9	41.9		
FIVE SPRINGS FALLS (WY)	7500	4/30	2	0.5	2.9	8.3		
FIVE-RULL	5700	5/01	0	0.0	4.6	5.3		
FLATTOP MOUNTAIN PILLW	6300	5/01	SP	44.7	43.7	54.8		
FLEECER RIUGE	7500	5/02	10	1.6	14.6	10.6		
FLOUHEN	8280	4/26	33	13.3	20.8	20.8		
FOUR MILE	6900	4/28	0	0.0	11.2	8.5		
FOURTH OF JULY	3450	4/30	0	0.0	4.2	-		
FRED BURR PASS	8000	5/05	45	19.6	28.4	31.5		
FREIGHT CREEK	6000	5/01	14	6.3	15.9	15.9		
FRIYAY HILL	4620	4/30	7	2.8	10.5	-		
FROHNER MEADOWS	6480	4/29	6	2.1	8.3	8.1		
FROHNER MEADOWS PILLW	6480	4/29	SP	6.0	11.3	9.2		
GARVER CREEK	4250	4/27	7	2.4	4.4	5.4		
GARVER CREEK PILLW	4250	4/27	SP	4.7	2.1	0.9		
GIBBONS PASS	7100	4/29	29	13.9	24.4	25.3		
GOAT MOUNTAIN	7000	4/27	12	4.5	14.8	10.4		
GOLD STONE	8100	4/29	30	12.5	21.4	20.5		
GRASSHOPPER	7000	4/30	0	0.0	7.4	6.0		
GRAVE CREEK	4300	4/27	16	5.5	13.2	16.0		
GRAVE CREEK PILLW	4300	4/27	SP	6.3	12.6	0.6		

SNOW (Con't.)	DRAINAGE BASIN AND SNOW COURSE		THIS YEAR			PAST RECORD		
			DATE (at Summit)	Snow Depth (inches)	Water Content (inches)	DATE (Last Year)	Water Content (inches)	Average
	NAME	Elevation						
GRIFFIN CREEK DIVIOE	5150	5/01	0	0	8.3	8.5		
GUNSLIGHT LAKE	6300	5/01	64	30.4	43.5	45.1		
HALVERSON CREEK (IO)	4850	4/27	72	38.8	36.5	43.5		
HANO CREEK	5030	4/28	12	4.1	15.4	7.7		
HAWKINS LAKE	6450	4/27	60	28.4	24.3	36.0		
HAWKINS LAKE PILLW	6450	4/27	SP	29.1	-	33.7		
HEART LAKE TRAIL	4800	4/27	28	11.4	21.3	19.1		
HEBGEN DAM	6550	4/30	0	0	9.6	8.3		
HELL ROARING DIVIDE	5770	4/29	42	18.8	31.1	33.5		
HERRIG JUNCTION	4850	4/29	30	12.7	21.4	-		
HOLBROOK	4530	5/01	0	0	1.4	2.8		
HOOD MEADOW	6600	4/28	24	8.2	10.8	13.3		
HOODMAN BASIN	6000	4/27	89	44.0	49.6	55.6		
HOODMAN BASIN PILLW	6000	5/01	SP	35.7	44.3	52.8		
HOODMAN CREEK	5900	4/27	81	39.8	49.3	52.0		
ICEBERG LAKE #3	5600	4/30	41	18.5	29.9	35.1		
INOENPENCE	7850	4/28	33	12.5	17.2	20.5		
INTERGAARD	6450	5/01	0	0	9.0	9.5		
ISLAND PARK (IO)	6310	4/28	0	0	9.8	11.4		
JACK CREEK	7500	4/28	0	0	-	-		
JAHNKE LAKE TRAIL	7200	4/30	10	4.4	13.9	9.7		
JOHNSON PARK	6450	4/28	0	0	6.7	2.8		
JOSEPHINE LOWER #9	4900	4/29	23	8.0	14.5	19.1		
KEELER CREEK	3300	4/27	0	0	0	1.8		
KINGS HILL	7500	5/01	17	6.4	17.8	17.9		
KIT CARSON (IO)	5020	4/27	0	0	2.6	-		
KIWANIS CAMP	3720	4/28	0	0	0	0.6		
LAKE CAMP (WY)	7850	5/01	0	0	7.5	8.8		
LAKE CREEK	6100	4/25	7	2.6	2.3	4.6		
LAKEVIEW CANYON	6930	4/28	24	8.5	11.6	13.3		
LAKEVIEW RIDGE	7400	4/28	14	5.0	10.3	11.3		
LEPMI PASS	7480	4/28	0	0	11.3	9.2		
LEPMI RIDGE	8100	4/28	14	4.8	15.1	10.6		
LEPMI RIDGE PILLW	8100	4/28	SP	6.7	17.0	10.2		
LICK CREEK	6660	4/28	24	9.5	10.8	11.2		
LICK CREEK PILLW	6660	4/28	SP	6.6	9.5	10.1		
LITTLE PARK	7400	4/30	32	13.2	15.4	19.0		
LOGAN CREEK	4300	4/28	0	0	4.9	3.0		
LOLO PASS (IO)	5230	4/30	38	17.1	30.8	31.4		
LONE MOUNTAIN	8800	4/30	46	21.7	24.0	28.1		
LOOKOUT (IO)	5250	4/30	40	17.4	28.2	35.4		
LOST HORSE	5940	4/30	57	25.2	34.6	35.8		
LOST SOUL	4800	4/27	9	3.2	10.5	9.2		
LOWER THIN	7900	4/28	39	17.3	25.2	25.8		
LUBRECHT FLUME	4200	5/03	0	0	0	0		
LUBRECHT FLUME PILLW	5450	5/03	SP	0	0	0		
LUBRECHT FOREST #3	5450	5/03	0	0	3.3	4.2		
LUBRECHT FOREST #4	4650	5/03	0	0	0	0		
LUBRECHT FOREST #6	4040	5/05	0	0	0	0		
LUBRECHT HYDROPLT	4200	5/03	0	0	0	0		
LUPINE CREEK (WY)	7300	4/30	11	3.6	-	8.9		
MAISON PLATEAU	7750	4/29	40	16.0	23.8	23.5		
MAISON PLATEAU PILLW	7750	4/29	SP	19.0	25.6	24.9		
MANY GLACIER	4960	4/30	14	5.6	15.8	-		
MANY GLACIER PILLW	4960	4/30	SP	0.2	11.5	-		
MARIAS PASS	5250	4/30	21	7.6	18.2	17.8		
MAYNARD CREEK	6210	5/01	23	8.2	23.5	16.5		
MAYNARD CREEK PILLW	6210	5/01	SP	7.7	16.3	13.8		
MIDDLE MILL CREEK	7850	4/30	22	8.2	18.7	19.2		
MILL CREEK	7500	5/03	0	0	12.2	15.3		
MINERAL CREEK	4000	4/30	19	6.4	9.9	14.2		
MONUMENT PEAK	8800	4/28	59	22.6	27.9	32.7		
MONUMENT PEAK PILLW	8800	4/28	SP	20.6	22.8	-		
MOOSE CREEK (IO)	6200	4/30	16	4.2	12.1	16.6		
MOULTON RESERVOIR	6850	4/28	0	0	7.6	-		
MOUNT ALLEN #7	5700	4/29	72	31.1	39.6	49.6		
MOUNT LOCKHART	6400	4/29	38	14.4	27.0	23.3		
MOUNT LOCKHART PILLW	6400	4/29	SP	18.0	25.2	22.6		
MUDD LAKE	7650	5/01	26	10.9	21.0	22.5		
NEWTON MOUNTAIN	5600	4/30	59	28.0	27.8	-		
NEZ PERCE CAMP	5580	4/27	15	5.4	17.0	13.6		
NEZ PERCE CAMP PILLW	5580	4/27	SP	7.9	16.8	-		
NEZ PERCE CREEK	6500	4/28	0	0	4.6	5.3		
NEZ PERCE PASS	6570	4/27	13	4.8	18.5	17.4		
NOISY BASIN	6040	4/26	90	42.4	48.3	52.1		
NOISY BASIN PILLW	6040	4/26	SP	36.8	43.1	45.5		
NORRIS BASIN (WY)	7500	4/30	0	0	7.9	8.6		
NORTH FK. ELK CREEK	6250	5/03	8	3.1	13.4	11.5		
NORTH FK. ELK CREEK PILL	6250	5/03	SP	0.8	13.0	11.8		
NORTH FORK JOCKO	6330	5/01	63	27.4	45.9	49.1		
NORTH MEADOW	7500	4/28	16	5.4	11.8	11.4		
NORTHEAST ENTRANCE	7400	5/03	1	0.5	8.0	8.5		
NORTHEAST ENTRANCE PILL.	7400	5/03	SP	0.1	8.9	8.2		
NOICH	8500	4/25	48	18.7	17.8	20.3		
OLD FAITHFUL(WY)	7360	5/05	0	0	10.9	-		
OPHIR PARK	7150	5/01	25	9.6	23.7	21.3		
PALISADE CREEK	8250	5/01	51	23.8	32.8	35.8		
PETERSON MEADOWS	7200	4/29	16	5.6	11.8	12.2		
PETERSON MEADOWS PILLW	7200	4/29	SP	6.4	11.8	13.0		
PICKET PIN O	9450	5/01	63	26.0A	26.5	32.4		
PICKFOOT CREEK	6650	4/28	0	0	10.2	-		
PICKFOOT CREEK PILLW	6650	4/28	SP	1.2	16.7	-		
PICNIC GROUNDS	6200	4/29	0	0	3.8	2.9		
PIEGAN PASS #6	5500	4/29	58	25.2	34.4	43.0		
PIPESTONE PASS	7200	5/01	10	1.9	9.8	6.5		
PLACER BASIN F	8800	5/01	33	13.0A	21.5	27.1		
POORMAN CREEK	5100	4/27	46	19.6	32.8	33.6		
POORMAN CREEK PILLW	5100	4/27	SP	17.5	37.0	32.1		
PORCUPINE	6500	4/29	7	2.6	11.3	8.5		
PORCUPINE PILLW	6500	4/29	SP	0.1	8.4	-		
POTOMAGETON PARK	7150	4/30	0	0	10.8	12.2		
PTARMIGAN #8	5800	4/30	58	26.3	33.2	42.2		
RED MOUNTAIN	6000	5/02	26	10.9	14.0	20.5		
RED TOP	5260	4/30	44	9.6	21.3	-		
ROCK CREEK	5600	4/25	10	4.4	10.6	9.1		
ROCKER PEAK	8000	5/05	22	9.6	18.8	18.3		
ROCKER PEAK PILLW	8000	5/05	SP	13.7	20.5	19.3		
ROCKY BOY	4700	4/28	0	0	7.4	2.1		
ROCKY BOY PILLW	4700	4/28	SP	0	7.6	2.6		
SACAJAWEA	6550	5/01	12	4.0	17.0	15.8		
SAGLE MOUNTAIN	7940	4/29	39	17.7	29.5	30.0		
SAGLE MOUNTAIN PILLW	7940	4/29	SP	16.9	24.8	30.7		
SHOWER FALLS	8710	4/28	70	33.5	35.4	37.1		
SHOWER FALLS	8100	4/29	52	22.2	30.3	32.2		
SHOWER FALLS PILLW	8100	4/29	SP	21.5	28.1	31.9		
SILVER RUN	6630	4/29	0	0	0	0		
SILVER RUN PILLW	6630	4/29	SP	0	0	0		

Columbia River Drainage

MOUNTAIN SNOWPACK

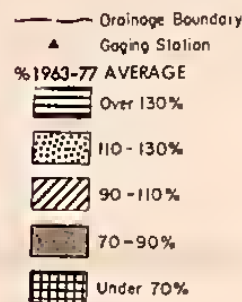
It appears that snowmelt is two to three weeks early this year. Melt occurred at all elevations during April and snow is gone from most low elevation areas.

With the exception of three small areas in the Flathead, Kootenai, and Lower Clark Fork drainages, the snowpack is less than 70 percent of average for May 1. Above normal temperatures and lack of snowfall have caused snow water content to be lower than April 1 at all but four snow courses. Normally about half of the snow courses show increases during April.

WATER SUPPLY OUTLOOK

STREAM or AREA	Spring Season	Summer Season
Tobacco	fair	poor
Little Bitterroot	fair	poor
Mission Valley	fair	poor
Flint Creek	fair	poor
Upper Clark Fork	fair	poor
Nevada Creek	fair	poor
Blackfoot	fair	poor
West-side Bitterroot	fair	poor
East-side Bitterroot	fair	poor
Bitterroot River	fair	poor
Lower Clark Fork	fair	poor

LEGEND



COLUMBIA RIVER DRAINAGE MONTANA MOUNTAIN SNOW WATER EQUIVALENT

STREAMFLOW FORECASTS

Streamflows have increased because of early snowmelt. April runoff was near or above average on most streams. Runoff for the remainder of the season is expected to be between 55 and 65 percent of average in the Clark Fork drainage and 65 to 70 percent of average in the Flathead drainage. The Kootenai River is forecast to have runoff around 80 to 85 percent of average on the main river, with tributaries in Montana forecast much lower.

With the early runoff, it is expected that irrigation water will be in short supply in most drainages by mid-summer. Many streams with low elevation headwaters have already reached their snowmelt peaks. The Clark Fork, Blackfoot and Flathead Rivers should peak before May 15, while the Bitterroot River should be four or five days later. All peak flows are expected to be lower than average on unregulated streams and rivers.

SUMMARY of SNOW MEASUREMENTS

RIVER BASIN or SUB-DRAINAGE	Number of Courses	THIS YEAR'S SNOW WATER AS PERCENT OF LAST YEAR	Average
Kootenai/BC	24	98	76
Kootenai/Montana	20	80	66
Kootenai	44	87	70
Little Bitterroot	5	9	12
Flathead	34	67	64
Clark Fork above Blackfoot	29	40	44
Blackfoot	17	40	43
Clark Fork above Missoula	46	40	44
Bitterroot	14	62	60
Lower Clark Fork below Missoula	14	66	61
Clark Fork (Total w/o Flathead)	74	52	53
Pend O'Reille (Clark Fork & Flathead)	108	57	57
Columbia (Pend O'Reille & Kootenai)	138	65	61

Yellowstone River Drainage

BASIN, STREAM and/or FORECAST POINT	THIS YEAR FORECAST		PAST RECORD		THIS YEAR FORECAST		PAST RECORD	
	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average
PERIOD	MAY - SEPTEMBER				MAY - JULY			
YELLOWSTONE RIVER at Corwin Springs	1,430	71	1,734	2,021	1,190	71	1,480	1,668
YELLOWSTONE RIVER near Livingston	1,690	72		2,363	1,380	71		1,941
BOULDER RIVER at Big Timber	285	70		404	260	70		370
STILLWATER near Absarokee (1)	495	78		634	420	80		528
CLARKS FORK RIVER near Belfry	470	75		623	420	77		543
ROCK CREEK near Red Lodge	88.0	76	103	116	68.0	78	79.0	89.0
INFLOW COONEY RESERVOIR near Boyd (2)	49.0	88		36.0	39.0	89		44.0
YELLOWSTONE RIVER at Billings	3,016	68	3,882	4,428	2,540	68	3,346	3,725
BIGHORN RIVER near St. Xavier (3)	1,468	78	986	1,887	1,325	77	834	1,714
LITTLE BIGHORN RIVER near Hardin	109	65		168	96.0	65		147
YELLOWSTONE RIVER at Miles City (4)	4,557	69		6,636	3,960	69		5,737
YELLOWSTONE RIVER near Sidney (5)	4,960	69		7,214	4,150	67		6,212

- Adjusted for storage in Mystic Lake
- Adjusted for storage in Cooney Reservoir
- Adjusted for storage in Buffalo Bill, Boyan, Bull Lake, Pilot Butte & Bighorn Reservoirs
- Adjusted for storage in Buffalo Bill, Boyan, Bull Lake, Pilot Butte, Bighorn & Tongue Reservoirs
- Adjusted for reservoirs in 4. and diversions into the Lower Yellowstone Canal

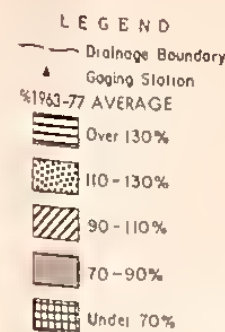
STREAMFLOW FORECASTS

April streamflow was near or above average on most drainages. May through September runoff is forecast to be between 70 and 80 percent of average. This year runoff is expected to occur around mid-May on most high elevation tributaries. Some lower streams have already reached their snowmelt peak.

Irrigation water supply shortages will be common by mid to late June on many of the smaller tributaries because of the early runoff and low snowpack.

WATER SUPPLY OUTLOOK

STREAM or AREA	Spring Season	Summer Season
Yellowstone at Livingston	fair	fair
Shields	fair	fair
Boulder	fair	fair
Sweetgrass - Big Timber	fair	fair
Stillwater	fair	fair
Rock Creek	fair	fair
Clark's Fork	fair	fair
Yellowstone above Bighorn	fair	fair
Bighorn	avg	avg
Little Bighorn	fair	poor
Tongue	fair	fair
Powder	fair	fair
Lower Yellowstone	fair	fair



YELLOWSTONE RIVER DRAINAGE MONTANA MOUNTAIN SNOW WATER EQUIVALENT

MOUNTAIN SNOWPACK

The area snowpack varies from about 50 to 75 percent of average. Some lower elevation snow courses have already melted out. Only one snow course showed an increase in water content over April 1 measurements. Normally about half of the snow courses show increases in water content during April.

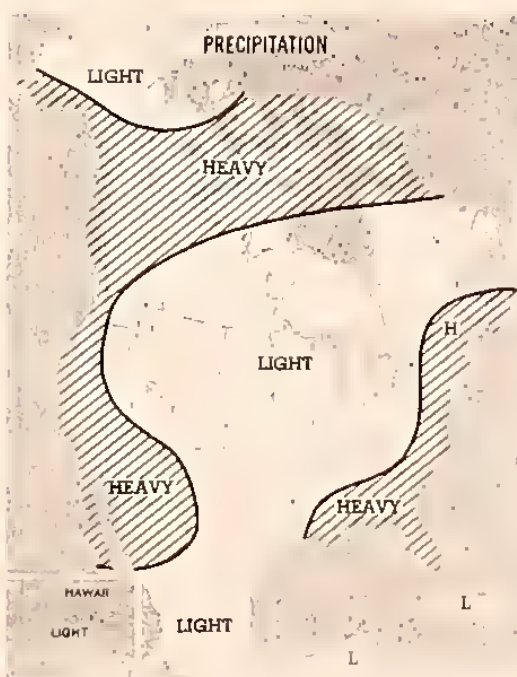
Snow is melting at most elevations and some data sites are reporting as much as one inch of water content melting each day.

BASIN, STREAM and/or FORECAST POINT	THIS YEAR FORECAST		PAST RECORD		THIS YEAR FORECAST		PAST RECORD		THIS YEAR FORECAST		PAST RECORD	
	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average
PERIOD	MAY - SEPTEMBER				MAY - JULY				MAY - JUNE			
KOOTENAI RIVER below Libby Dam	5,740	84	4,191	6,814	4,810	84	3,584	5,746				
FISHER RIVER near Libby	113	57		199	105	57		183				
YAAK RIVER near Troy	225	59		434	238	58		411				
KOOTENAI RIVER at Leona (1)	6,590	81	5,111	8,116	5,590	80	4,413	6,966	4,300	80	3,619	5,402
INFLOW HOULTON RESERVOIR nr BUTTE (Million Gallons)				110	44	217	248		96.0	43	208	222
WARM SPRINGS CREEK AT MEYERS DAN near Anaconda (2)	29.8	62	29.0	48.1	23.8	62	21.9	38.6				
FLINT CREEK near Southern Cross (3)	8.5	52		16.4	6.8	51		13.4				
FLINT CREEK below Boulder Creek (4)	41.0	58		70.1	29.0	54		53.5				
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)	7.0	49	9.3	14.3	6.3	47	8.6	13.5				
MIDDLE FORK ROCK CREEK near Philipsburg	51.0	68		74.9	45.5	68		67.1				
NEVADA CREEK near Finn	8.3	43		19.3	7.3	42		17.5				
BLACKFOOT CREEK near Bonner	550	61		899	480	60		802	405	60		676
CLARK FORK RIVER above Milltown (6)	460	63		734	385	62		621	310	61		505
CLARK FORK RIVER above Missoula	1,010	62	1,256	1,633	865	61	1,106	1,423	715	61	975	1,180
WEST FORK BITTERROOT RIVER near Conner (7)	90.0	53		170	82.0	53		155				
BITTERROOT RIVER near Darby	312	57	377	549	285	57	341	499	245	57	302	427
SKALKAHO CREEK near Hamilton	37.0	68		54.5	32.0	68		47.0				
BURNT FORK CREEK near Stevenaville	25.0	68	25.3	36.8	21.5	68	20.0	31.7				
BITTERROOT RIVER at Missoula (9)	840	60		1,409	775	60		1,282	650	60		1,075
CLARK FORK RIVER below Missoula	1,850	61		3,042	1,640	61		2,705	1,365	61		2,255
CLARK FORK RIVER at St. Regis	2,280	57	3,184	4,001	2,000	56	2,873	3,557	1,660	56	2,547	2,971
NORTH FORK FLATHEAD RIVER near Columbia Falls	1,240	69		1,809	1,120	69		1,622	930	70		1,338
MIDDLE FORK FLATHEAD RIVER near West Glacier	1,210	69	1,589	1,756	1,100	69	1,471	1,595	920	70	1,285	1,315
SOUTH FORK FLATHEAD RIVER near Columbia Falls	1,400	67	1,844	2,076	1,300	67	1,758	1,934	1,130	68	1,600	1,659
FLATHEAD RIVER at Columbia Falls (10)	3,900	68	4,845	5,773	3,620	69	4,522	5,270	3,080	70	4,034	4,405
SWAN RIVER near Big Fork	410	69		595	355	70		510				
FLATHEAD RIVER near Polson (11)	4,480	67	5,630	6,692	4,050	66	5,246	6,105	3,350	66	4,632	5,079
CLARK FORK RIVER near Plains (11)	6,950	63	9,161	10,570	6,180	62	8,453	9,953	5,100	62	7,495	8,238
THOMPSON RIVER near Thompson Falls	150	68		219	126	66		191				
PROSPECT CREEK at Thompson Falls	79.0	68		116	70.0	66		106				
CLARK FORK RIVER at Whitehorse Rapids	7,590	62		12,207	6,740	62		10,945	5,600	62		9,059

- Adjusted for storage in Lake Koocanusa.
- Adjusted for storage in Silver Lake, diversions to and pumping from Georgetown Lake.
- Adjusted for storage in Georgetown Lake, diversions from and pumping to Silver Lake.
- Sum Flint Creek at Missoula and Boulder Creek at Maevilla.
- Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall.
- Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.

- Adjusted for storage in Painted Rocks Reservoir.
- Adjusted for diversion into Sunset Nightline Canal.
- Difference in observed flow Clark Fork above and below Missoula.
- Adjusted for storage in Hungry Horse Reservoir.
- Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
- Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Navajo Rapids Reservoir.

average monthly weather outlook



MAY 1980

The National Weather Service expects temperatures to be above normal for May for all of Montana and the Northwestern United States. Precipitation is projected to be light in Montana.

SUMMARY of SNOW MEASUREMENTS

RIVER BASIN or SUB-DRAINAGE	Number of Courses	THIS YEAR'S SNOW WATER AS PERCENT OF LAST YEAR	Average
Upper Yellowstone			
ab Livingston	11	60	53
Shields	6	45	49
Boulder 6			
Stillwater	6	72	64
Rock Creek & Clark's Fork	11	75	67
Yellowstone (ab Bighorn River)	34	64	59
Bighorn/Wyoming	31	80	62
Little Bighorn	4	61	39
Bighorn (Total)	35	78	59
Tongue	5	70	46
Powder	5	57	40
Yellowstone (Total)	79	69	58

Missouri River & Hudson Bay Drainages

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRES		FORECAST		THOUSAND ACRES	
	THOUSAND ACRES	PERCENT OF AVERAGE	LAST YEAR	AVERAGE	THOUSAND ACRES	PERCENT OF AVERAGE	LAST YEAR	AVERAGE

PERIOD	MAY - SEPTEMBER		MAY - JULY	
RED ROCK RIVER near Monida (1)	57.0	64	57.0	88.5
BEAVERHEAD RIVER near Grant (2)	77.0	58	133	64.0
BEAVERHEAD RIVER at Barratto (2)	107	59	180	87.0
RUBY RIVER near Alder	75.0	76	96.0	62.0
BIG HOLE RIVER near Melrose	375	53	710	334
BOULDER RIVER near Boulder	59.0	63	81.9	93.3
WILLOW CREEK near Harrison	11.5	61	19.0	10.0
MADISON RIVER near Grayling (3)	349	75	334	466
MADISON RIVER near McAllister (4)	615	79	552	783
GALLATIN RIVER near Gateway	385	71	542	325
INFLOW MIDDLE CREEK RESERVOIR near Bozeman (5)	23.3	81	24.1	26.7
HYALITE CREEK near Bozeman (6)	34.6	77	44.9	29.5
GALLATIN RIVER at Logan	360	62	580	298
MISSOURI RIVER at Tooton (7)	1,375	59	1,610	2,314
SHEEP CREEK near White Sulphur Springs	12.1	57	21.5	10.0
SUN RIVER at Cibaon Dam (8)	348	64	449	546
BELT CREEK near Monarch	67.0	49	137	60.0
MISSOURI RIVER at Port Benton (9)	1,958	54	1,613	1,580
TWO MEDICINE CREEK near Browning (10)	162	69	235	152
BADGER CREEK near Browning	78.0	63	124	66.0
MARIAS RIVER near Shelby	335	65	390	518
MISSOURI RIVER at Virgelle (11)	2,297	55	4,189	1,890
SOUTH FORK JUDITH RIVER near Utica	Streamage discontinued by USCS.			
MISSOURI RIVER near Landusky (11)	2,529	56	4,553	2,080
NORTH FORK MUSSELSHELL RIVER near Delpine	2.0	38	5.3	1.6
SOUTH FORK MUSSELSHELL RIVER above Hartinadale	22.0	40	55.2	20.7
MISSOURI RIVER below Fort Peck Dam (11)	2,369	56	4,253	2,025
MILK RIVER at Eastern Crossing	182	83	220	
INFLOW LAKE SAKAKAWA, ND (11)	7,330	63	11,636	6,460

SASKATCHEWAN RIVER BASIN								
SWIFT CURRENT CREEK at Sherburne (12)	87.0	70	99.1	124	75.6	70	89.2	108
ST. MARY'S RIVER near Babb (12)	337	71	478	285	70			407

STREAMFLOW FORECASTS

Runoff during April was generally near to above average. Streamflow for the remaining spring and summer months is forecast to be around 50 to 65 percent of average on most drainages. The Ruby, Upper Gallatin, St. Mary's and Milk Rivers are expected to produce a little higher runoff, but will still be in the 70 to 80 percent range. All snow-melt peak flows are expected to be below average and two to four weeks earlier than usual. Many lower elevation streams have reached or are now reaching their snowmelt peaks. The Madison, Jefferson, Big Hole Rivers and Missouri River inflow to Canyon Ferry Reservoir are expected to reach their peak snowmelt runoff around May 10. The Gallatin River should peak about a week later.

With the shortage of snow this season and early warm weather, irrigation water shortages are expected to be common in most areas by mid to late June.

WATER SUPPLY OUTLOOK

STREAM or AREA	Spring Season	Late Season
Beaverhead	fair	poor
Ruby	fair	poor
Big Hole	fair	poor
Boulder	fair	poor
Jefferson	fair	poor
Madison	fair	poor
Gallatin	fair	poor
West-Side Missouri	fair	poor
Smith-Belt	fair	poor
Sun	fair	poor
Teton	fair	poor
Marias	fair	poor
Judith	fair	poor
Musselshell	fair	poor
Milk	fair	poor
Bear Paws	fair	poor
St. Mary's	fair	poor



MOUNTAIN SNOWPACK

Presently, water stored in the snow-pack varies from about 40 to 70 percent of average. Many low elevation snow courses have no snow. The melt rate at many snow courses is near or exceeds one inch of water content per day.

Except for three high elevation snow courses in the Madison-Gallatin drainage, water contents measured on May 1 were lower than on April 1. Half of the snow courses would normally show increases. Above normal temperatures persisting through much of April have caused melting at all elevations. Snow cover is gone from most low elevations and exposed south facing slopes.

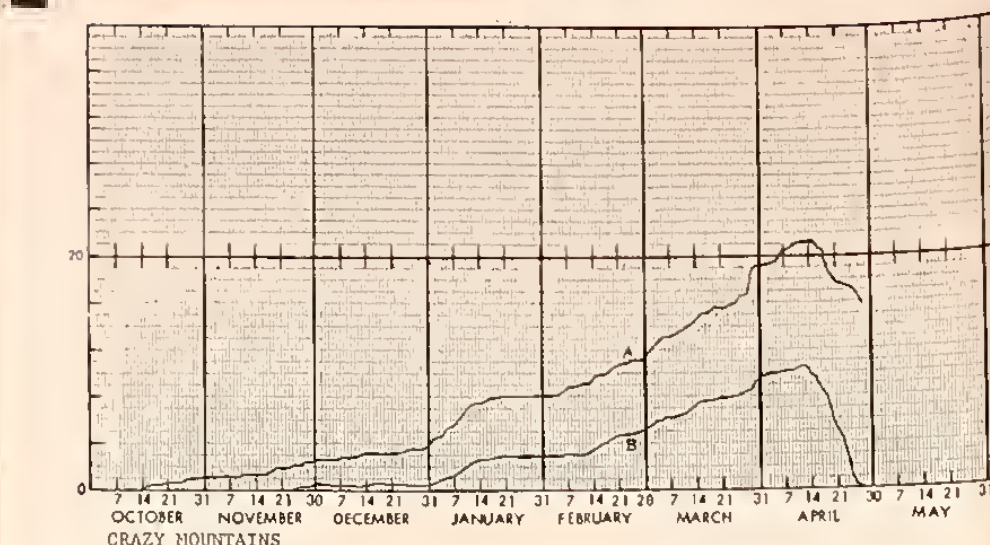
MISSOURI RIVER & HUDSON BAY DRAINAGES

MONTANA
MOUNTAIN SNOW WATER EQUIVALENT

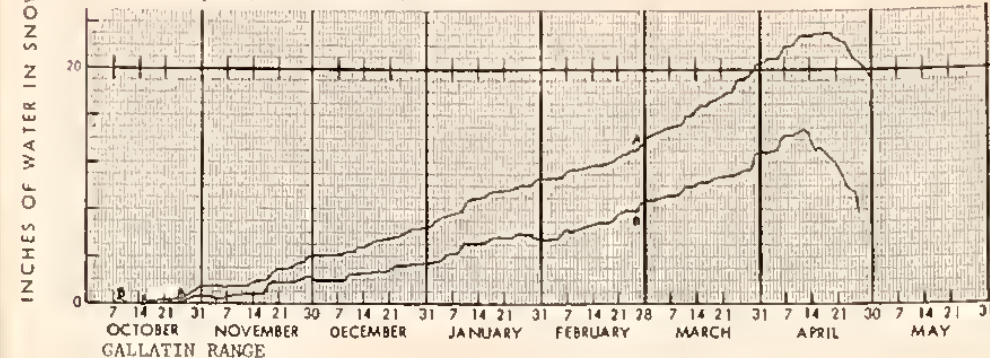
SUMMARY of SNOW MEASUREMENTS

COMPARISON WITH PREVIOUS YEARS			
RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		LAST YEAR	AVERAGE
Beaverhead.....	18	60	61
Ruby.....	8	68	62
Big Hole.....	20	52	53
Boulder.....	9	38	45
Jefferson.....	55	55	56
Madison.....	19	59	53
Gallatin.....	15	66	60
Missouri Headwater.....	89	58	57
West-Side Missouri (Toston-Cascade).....	7	42	50
Smith & Belt.....	6	42	44
Missouri Main-stem.....	13	42	47
Teton & Sun.....	8	38	46
Marias.....	4	64	61
Marias-Teton-Sun.....	12	50	54
Judith.....	6	41	42
Musselshell.....	5	44	52
Judith-Musselshell.....	11	42	46
Milk.....	7	15	23
Bear Paws.....	6	0	0
Missouri (Total).....	132	54	54
Saskatchewan.....			
St. Mary's.....	7	68	56
Bow River in Alberta.....	-	-	-

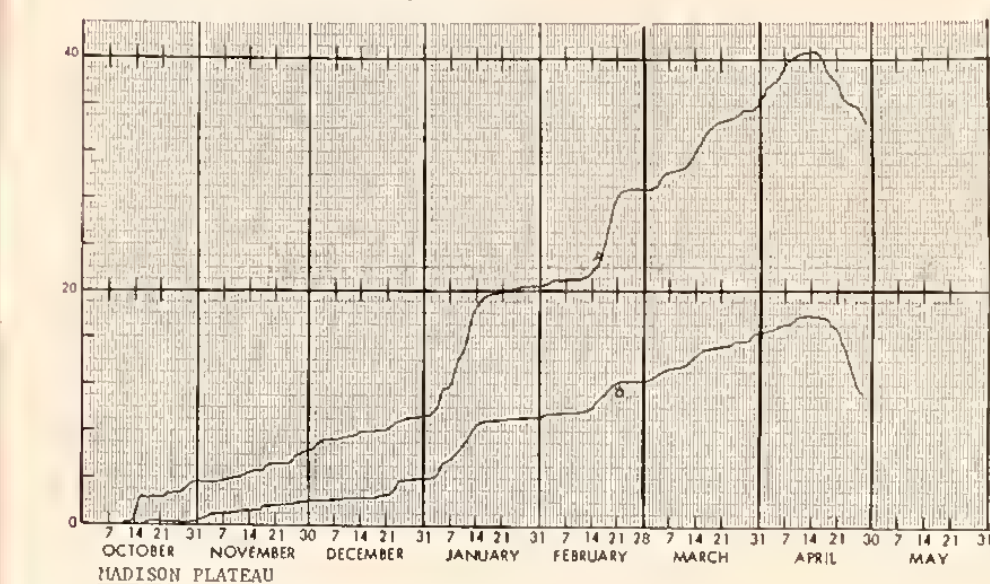
SNOW PILLOW DATA



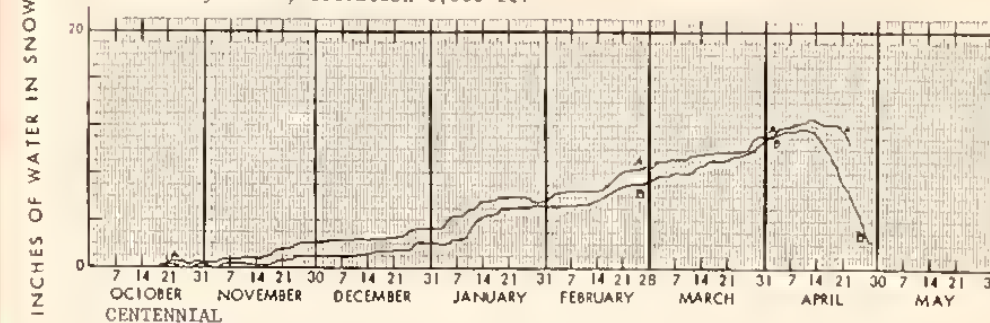
A South Fork Shields, elevation 8,100 ft.
B Porcupine, elevation 6,500 ft.



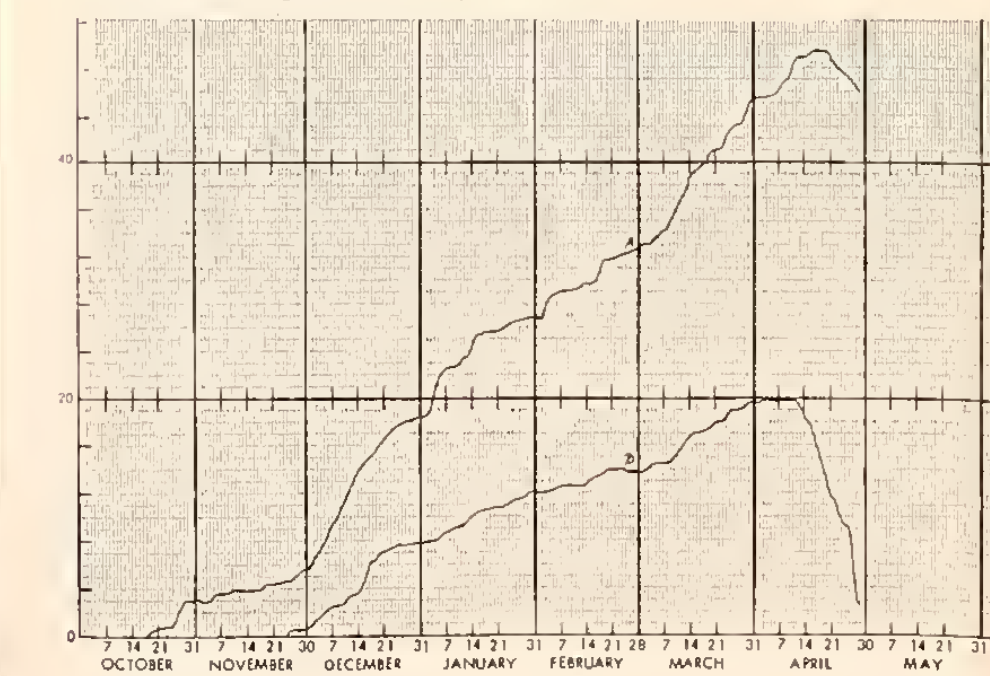
A Shower Falls, elevation 8,100 ft.
B Lick Creek, elevation 6,860 ft.



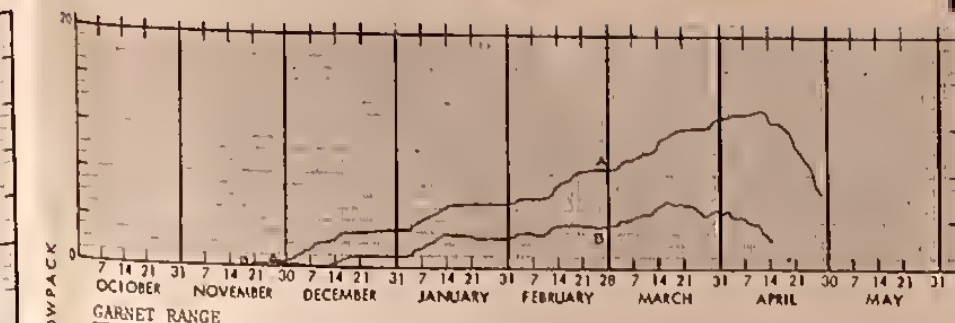
A Black Bear, elevation 7,950 ft.
B Whiskey Creek, elevation 6,800 ft.



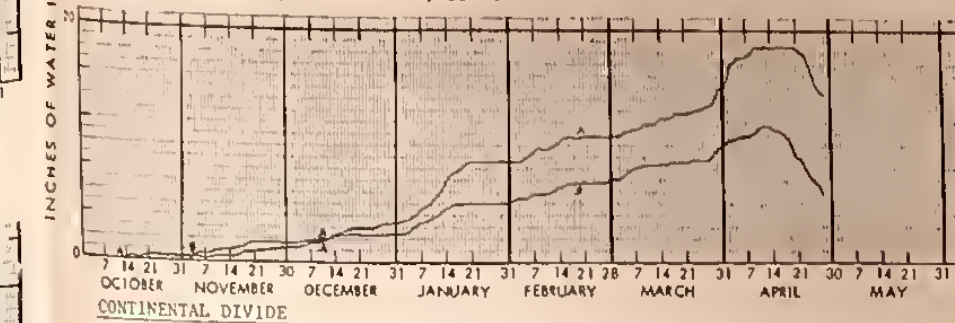
A Divide, elevation 7,800 ft.
B Lakeview Ridge, elevation 7,400 ft.



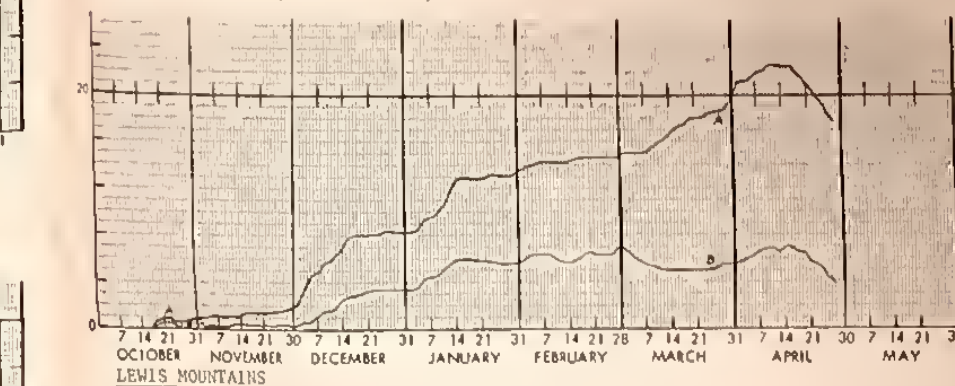
A Flattop Mountain, elevation 6,300 ft.
B Many Glacier, elevation 4,900 ft.



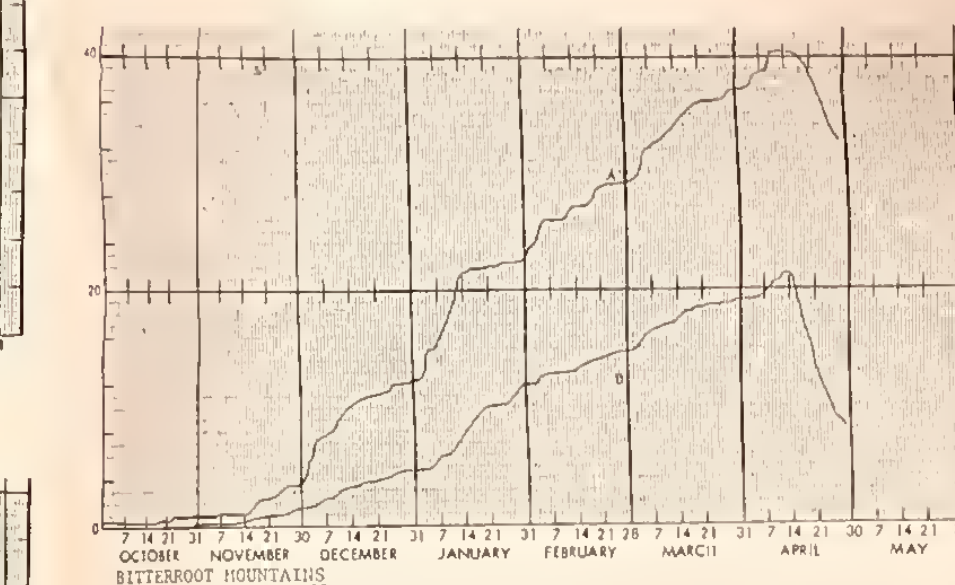
A North Fork Elk Creek, elevation 6,250 ft.
B Lubrecht Flume, elevation 4,680 ft.



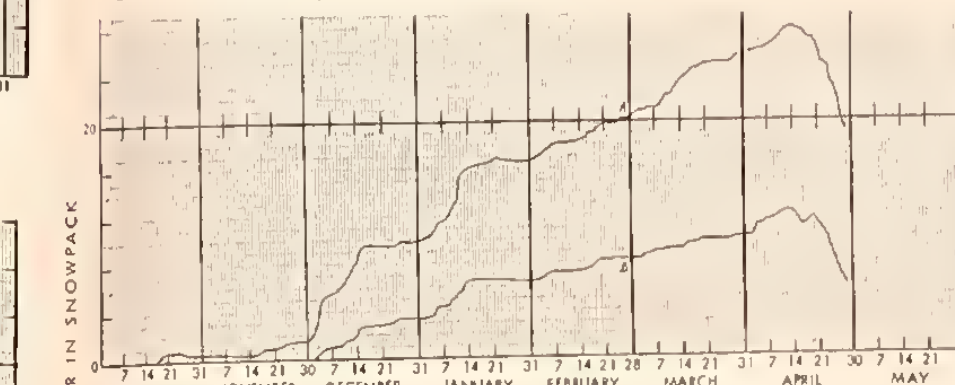
A Recker Peak, elevation 8,000 ft.
B Frohner Meadow, elevation 6,480 ft.



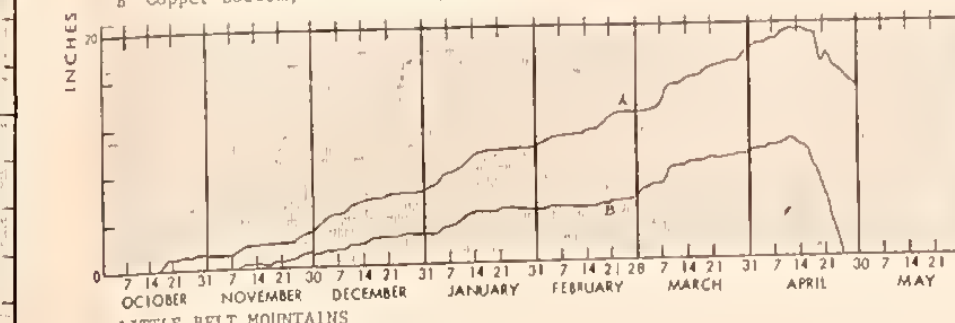
A Mount Lockhart, elevation 6,400 ft.
B Waldron, elevation 5,600 ft.



A Twin Lakes, elevation 6,400 ft.
B Twelvemile Creek, elevation 5,600 ft.



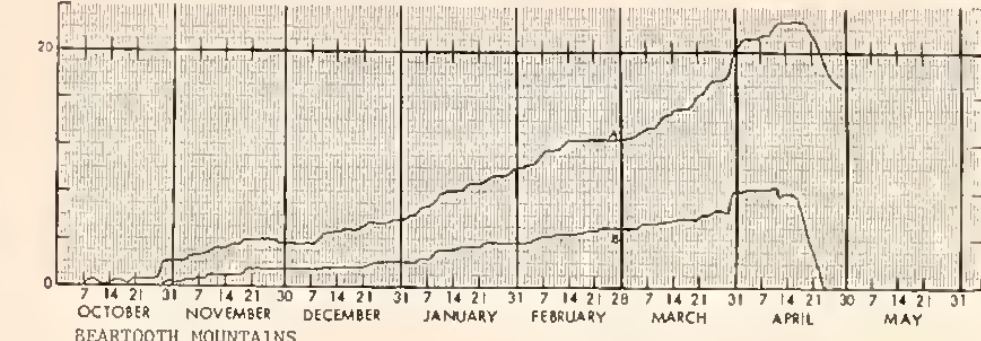
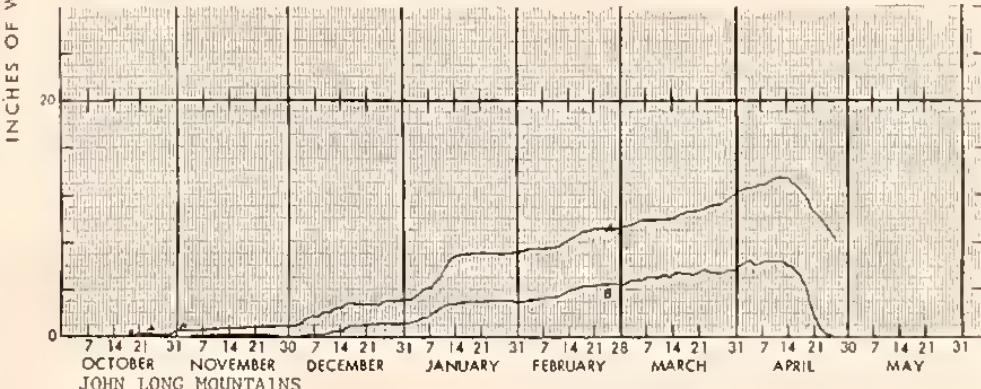
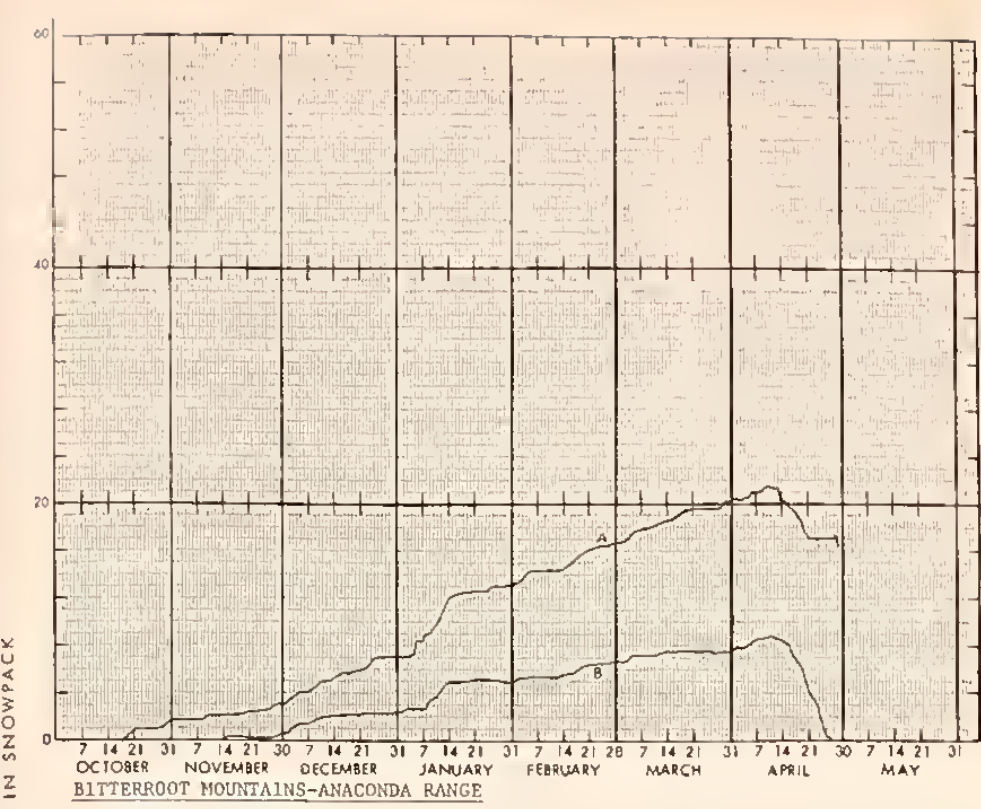
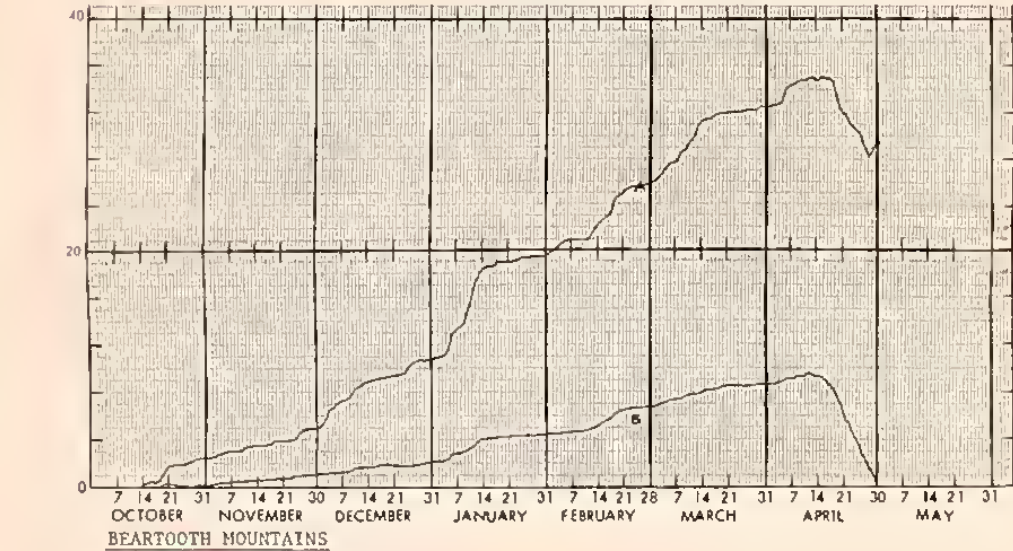
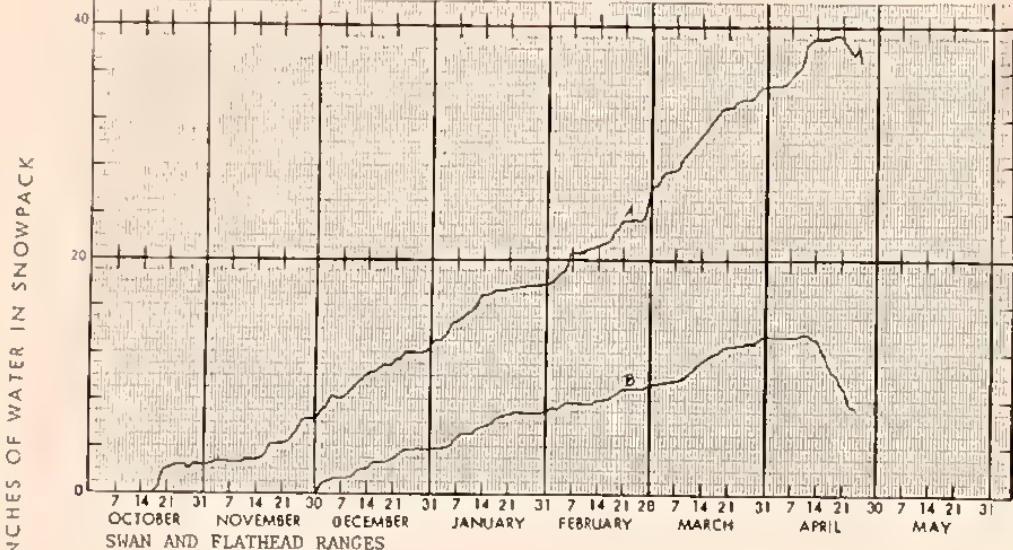
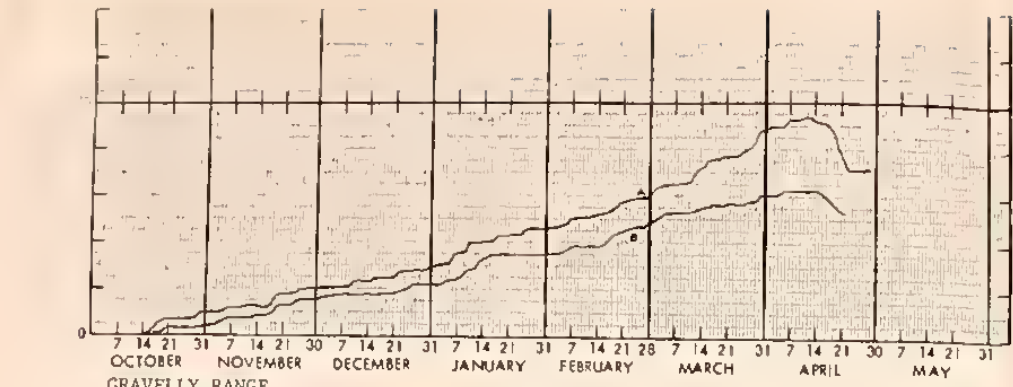
A Copper Camp, elevation 6,950 ft.
B Copper Bottom, elevation 5,200 ft.



A Spur Park, elevation 8,100 ft.
B Deadman Creek, elevation 6,450 ft.

(Continued)

Snow Pillow Data (Con't.)



AGENCIES & ORGANIZATIONS COOPERATING
in Montana Snow Surveys

GOVERNMENT AGENCIES

Canada

Water Survey of Canada, Department of the Environment, Calgary
Water Resources Service, Department of Lands, Forests, and
Water Resources, British Columbia
Alberta Environment, Edmonton, Alberta

United States

DEPARTMENTS OF:
Army----- Corps of Engineers
Agriculture-- Forest Service
 Soil Conservation Service
Commerce--- National Environmental Satellite Service
 National Weather Service
Interior----- Bonneville Power Administration
 Bureau of Indian Affairs
 Fish & Wildlife Service
 Geological Survey
 National Park Service
 Water & Power Resources Service

STATE OF MONTANA

Conservation Districts
Department of Fish, Wildlife & Parks
Department of Natural Resources & Conservation
Agricultural Experiment Station
University of Montana, School of Forestry
State Forester

PRIVATE ORGANIZATIONS & INDIVIDUALS

Butte Water Company
Montana Power Company
The Anaconda Company
Big Sky of Montana
Jack & Scott Graveley
Arthur Christensen
Jack Fenton